What you can bring to the exam!!

For this exam, you may bring one 8½x11 sheet of paper with handwritten notes on one side only. Prior to the exam, feel free to collaborate with each other to decide what you want on your sheets, but you must write your own sheet of notes. If you bring the sheet to the exam, you must turn it in with the exam. No other aids are allowed - just something with which to write. A pencil is suggested.

Identifiers

1. What are the rules that must be followed in creating user-defined C++ symbols?
2. What are variables and how are they declared?
3. Name at least six standard declaration types for variables that exist in C++.
4. When a variable has been declared, how do we interpret using that variable in a statement?
5. What is a good rule to follow when creating a variable name?

Arithmetic Operators

- Know the standard arithmetic operators: +, -, *, /, and %.
- What is the order of precedence for these operators?
- What happens when an integer value is divided by another integer?
- What happens when an operation is performed between an integer and a double?
- Know how ( ) can be used to override the precedence of operators.
Logical Operators & Expressions

- Know the relational operators: <, >, <=, >=, ==, and !=. How are these used to create logical expressions?
- Know the logical operators: (binary) ||, && and (unary) !. How are these used to combine logical expressions?
- At this point don’t worry about the precedence of logical operators. When in doubt use ()

Control Structures

- Know the following control structures and how to use them.
  - if (logical expression) statement;
  - if (logical expression) statement1; else statement 2;
  - for( ? ; ? ; ?) statement;
  - do { statements} while (logical expression);
  - while(logical expression) statement;
- Remember that statement can always be replaced by {statements}.

Equivalence of Structures

Given a looping structure created with for, while, do-while, or switch, be able to write it in an equivalent form using another structure. For example write the following as an equivalent while.

do {
  cout << "input next number: ";
  cin >> b;
  cout << sqrt(b) << endl;
} while(b != 0);

Some switch structures can be written effectively with nested if-else structures. Know how to do this.
Functions

- What is a function?
- How is it defined?
- What is a prototype and why is it necessary?
- How many values can a function return?
- How do you declare the return type?
- What is the argument list in a call to a function?
- What is the parameter list in the header of the function?

Functions (cont).

- Name two ways that argument values are passed to parameter values, and be able to describe the difference in them. Know the circumstances under which each is used.
- How does one implement the two variable passing methods asked for above?
- At this point do not worry about recursive functions or recursion.

Functions (cont).

- Know some of the library functions we have used from cstdlib and cmath.
- rand( ) and srand( ) are two important functions. Know what they do. Using rand( ), how do you find a random integer within some range? How do you find a random double in the interval [0,1]?
Problems

Concentrate on the types of problems we have done in class, particularly the review problems, or that have been distributed. If you are asked to do a problem that you have not seen, it will be of the level of difficulty of the ones we have considered. Be familiar with the techniques required to do labs 1, 2, & 3. The self-test exercises (those in green) are good to understand.